concluded independently that the affinities of *personata* may lie with *schistacea*, *pollens* or *larvata* rather than *novaehollandiae*.

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Natal pterylosis of three Neotropical blackbirds (Icteridae)

by Charles T. Collins and Dennis Minsky

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The natal pterylosis of Neotropical passerine birds has been given increased attention in recent years (Collins 1963, 1973, Collins & Kemp 1976, Collins & Bender 1977a, Ingels 1979). However information is still lacking on many groups, making broad generalizations largely premature. As further data become available, one question which can be addressed is whether or not tropical passerines have a greater or lesser total number of neossoptiles than their temperate zone counterparts. The data presented here on 3 Neotropical blackbirds in the family Icteridae, all of which have Nearctic congeners, permit at least a preliminary comparison to be made.

The species available for this study were the Shiny Cowbird *Molothrus bonariensis*, Carib Grackle *Quiscalus lugubris* and the Yellow-hooded Blackbird *Agelaius icterocephalus*. The single grackle specimen (late Stage A, see Wetherbee 1957: 356) was collected near Arima, St. George County, Trinidad on 13 June 1963. Two specimens (Stage A) of the Yellow-hooded Blackbird and, in the same nest, one cowbird brood parasite were collected near Cacandee Village, Caroni County, Trinidad on 17 August 1964. Two additional cowbirds were collected in Venezuela; one (late Stage A, 3 days old) from a nest of the Pale-breasted Thrush *Turdus leucomelas* in Parque Nacional Henri Pittier, Estado Aragua, on 2 June 1972, the other (Stage A)

from the nest of the White-bearded Flycatcher *Conopias inornata* at Fundo Pecuario Masaguaral, Estado Guárico (Thomas 1979). The latter specimen was contributed by Betsy Trent Thomas; the remainder were collected by the senior author. All these specimens had a moderately heavy covering of neossoptiles ranging in number from a low of 84 to a high of 200 (both in *Molothrus*) and occurring in from 8 to 12 tracts. Neossoptile colour ranged from dark grey in *Quiscalus* and *Molothrus* to pale greyish-white in *Agelaius*. The number of neossoptiles and their distribution are summarized in Table 1.

TABLE 1

Distribution of Neossoptiles in Neotropical blackbirds (Icteridae)

TRACT	MOLOTHRUS BONARIENSIS		QUISCALUS LUGUBRIS	AGELAIUS ICTEROCEPHALUS	
Coronal	18/17 *	9/8	3/1	11/11	10/12	9/11
Occipital...	7/5	3/3	1/1	7/7	4/3	3/3
Mid-dorsal	8/8	5/5	4/4	10/9	4/5	4/4
Pelvic (medial)** ...	11	5	8	13	13	7
Pelvic (lateral)	1/1	0/0	0/0	4/4	1/1	0/1
Scapular	9/9	6/6	6/6	10/10	8/8	8/8
Femoral	11/11	10/10	6/6	15/15	10/10	10/10
Abdominal	5/4	0/0	0/0	0/0	0/0	0/0
Crural	10/9	1/1	0/0	0/0	3/3	0/0
Rectrices...	6/6	5/5	5/5	6/6	6/6	5/6
Primaries...	4/4	0/0	0/0	4/6	0/0	0/0
Secondaries	0/0	0/0	0/0	2/2	0/0	0/0
Greater Secondary Coverts	10/10	8/8	7/7	10/9	8/9	9/9
Middle Secondary Coverts	8/8	7/7	7/7	7/7	7/7	7/7
TOTAL	200	112	84	185	138	121

*Number of neossoptiles on right/left side.

**Unpaired tract on midline; all others paired.

TABLE 2

Average total neossoptile count for congeneric Neotropical and Nearctic Icteridae.

NEOTROPICAL SPECIES A		NEARCTIC SPECIES B	
Quiscalus lugubris	185	*Quiscalus quiscala*	209
Molothrus bonariensis	132	*Molothrus ater*	174
Agelaius icterocephalus	130	*Agelaius phoeniceus*	191

A. This study (Table 1).

B. Wetherbee 1957 (Tables 50, 52–53).

There was appreciable intra-specific variation in the total neossoptile counts of these blackbirds, particularly in *Molothrus*. Part of the variation in *Molothrus* is due to the absence of neossoptiles in the primaries and abdominal tract in 2 of the 3 specimens and in the crural tract of one; abdominal tract neossoptiles were similarly absent in both *Quiscalus* and *Agelaius*. Neossoptiles were present on both primaries and secondaries only in *Quiscalus*. Downs in the pelvic region of the spinal tract occurred in an unpaired medial row in all specimens, although divided into anterior and posterior groups in one specimen of *Molothrus*. In addition, lateral (usually paired) neossoptiles in the

pelvic region were noted in one or more specimens in each of the 3 blackbird genera examined. Such lateral pelvic downs were noted previously for *Paroaria gularis* in the Emberizinae (Collins & Bender 1977b) and *Carpodacus mexicanus* in the Carduelinae (Collins & Bender 1977a), but not for the several species of Nearctic Icteridae examined by Wetherbee (1957). Thus the arrangement of neossoptiles in this region shows some possibly diagnostic patterns which may prove to be of taxonomic importance when additional material becomes available. The single secondary neossoptile originally thought to be diagnostic of *Molothrus ater* (Wetherbee 1957) was not observed in 5 additional specimens (Wetherbee 1958) and was similarly absent in all 3 specimens of *M. bonariensis* examined in this study (Table 1). The minute neossoptiles of the flight feathers were all less than 1 mm long, except for the outermost rectrix, in which it was about 3 mm; mid-dorsal downs were typically about 8 mm long.

The average total number of neossoptiles in the 3 Neotropical blackbirds examined in this study were consistently lower than the corresponding values for their 3 Nearctic congeners (Table 2). This would suggest that neossoptiles serve some additional function, possibly an aid to thermo-regulation, in the species inhabiting higher latitudes and not just the provision of cryptic colouration. Similar data for other pairs of congeneric passerines in other families (Collins, in prep.) seem to provide some necessary support for this conclusion. However, it should be kept in mind that correlations with other variables, for example open or closed nests, have already been noted in the Thraupidae (Collins 1963, Ingels 1979) and *Sporophila* finches (Collins & Kemp 1976). This, and the extensive intra-specific variation noted in the species analysed here, makes generalizations about the total amount of down in Neotropical passerines tentative at present, even in the Icteridae. As additional data become available the functional significance of the amount and distribution of neossoptiles may be further clarified.

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